

Application No.: 10/802,702 MAT-7927US1
Amendment Dated: June 9, 2008
Reply to Office Action of: March 17, 2008

Remarks/Arguments:

Applicants' invention is directed to a surface lighting device. The surface lighting device generally includes a light source such as an LED 1 and a light guide board 2 including a light guiding section 3 and a light emitting section 4. The light guiding section 3 is configured to spread the light emitted from LED 1 in the width of the light guide board 2. The light guide board 2 guides the spread light across the surface of the light emitting section 4 through which the light is emitted.

Claims 1-7, 10-11, 14 and 15 stand rejected under 35 U.S.C. § 103(a) as obvious over Oyama et al. (U.S. Patent No. 5,808,708). Claims 8 and 9 stand rejected under 35 U.S.C. § 103(a) as obvious over Oyama and Arikawa et al. (U.S. Patent No. 6,437,840). It is respectfully submitted, however, that the claims are patentable over the art of record for the reasons set forth below.

Oyama discloses a flat light source device 1 which is used as a back light for a liquid crystal display (LCD) panel 2. The light source device 1 includes a light source 3 and a light guide 4. The light guide 4 includes an incident plane 4c through which light enters the light guide 4 from the light source 3. A non-data-display portion of the light guide 4 is bent and guides the light toward a light emitting section 4d of the light guide 4. The light is emitted through light emitting section 4d towards the LCD panel 2.

Applicants' invention, as recited by claim 1, includes a feature which is neither disclosed nor suggested by the art of record, namely:

... a length of shorter side of said light-guiding-section is not more than 8 mm, an area of said light-emitting-section is not less than 500 mm², a ratio of minimum luminance vs. maximum luminance of said light-emitting-section is not less than 0.3, an average luminance of said light-emitting-section ranges from 1 cd/m² to 200 cd/m², and a luminance change amount per unit length is not more than (average luminance) × 100 cd/m³ ...

This feature is described, for example, in the originally filed application at page 24, line 18 through page 26, line 5.

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The Examiner does not argue that Oyama discloses the feature quoted above. Instead, the Examiner argues that "it would have been obvious for one of ordinary skill in the art at the time of the invention to choose any value for the above parameters and other parameters...since choosing the value for the above parameters merely depends on the availability of the parts, the configuration of the system, and the cost requirement of the system." See Office Action at pp. 3-4 (emphasis added). Applicants respectfully traverse the Examiner's rejection for the following reasons. The values selected for the parameters recited in claim 1 depend on factors other than the availability of the parts, the configuration of the system and the cost requirement of the system. Moreover, the values selected for the parameters recited in claim 1 achieve unexpected results and, therefore, would not have been obvious to one of ordinary skill in the art at the time of the invention.

Specifically, the following unexpected results are achievable due to the values recited in claim 1. When "a length of shorter side of said light-guiding section is not more than 8 mm," "an area of said light-emitting section is not less than 500 mm²," and/or "a ratio of minimum luminance vs. maximum luminance of said light-emitting-section is not less than 0.3," the lighting device provides for a clear display with excellent visibility. See Applicants' specification at page 24, lines 19-23. When "an average luminance of said light-emitting-section ranges from 1 cd/m² to 200 cd/m²," a surface lighting device at ambient condition for human eyes is achievable. See Applicants' specification at page 25, lines 14-16. When "a luminance change amount per unit length is not more than (average luminance) x 100 cd/m³," the surface lighting device may be "efficient and free from recognizable uneven luminance, thereby realizing a clear and easy-to-see surface lighting device." See Applicants' specification at page 25, line 26 through page 26, line 5.

Accordingly, for the reasons set forth above, claim 1 is patentable over the art of record.

Claims 14 and 15, while not identical to claim 1, include features similar to claim 1. Accordingly, claims 14 and 15 are also patentable over the art of record for the reasons set forth above.

Claims 2-11 include all the features of claim 1 from which they depend. Claims 53 and 54 include all the features of claim 14 from which they depend. Claims 55 and 56 include all the features of claim 15 from which they depend. Thus, claims 2-11 and 53-56 are also patentable over the art of record for the reasons set forth above.

Claims 57-67 are newly added. Claims 57-62 are supported, for example, by the originally filed application at page 16, line 23 through page 17, line 12. Claims 63-64 are supported, for example, by the originally filed application at page 20, lines 15-18. Claims 65-67 are supported, for example, by the originally filed application at page 27, lines 17-18. No new matter has been added.

In addition to its dependency on allowable claim 1, claim 2 includes a feature which is neither disclosed nor suggested by the art of record, namely:

... a barrier plate for blocking the light emitted from entering directly to said light-guide-member... (emphasis added).

This feature is described, for example, in the originally filed application at page 20, lines 15-18. No new matter has been added.

The Examiner argues that Oyama's reflector 5 reads on Applicants' barrier plate. However, Oyama's reflector 5 does not block light emitted from light source 3 from entering directly to the light guide 4. To the contrary, Oyama's reflector 5 is located so as to reflect the light from light source 3 "so that the light falls on the guiding plate 4 efficiently." See Oyama col. 5, lines 50-53. As shown in Oyama FIG. 1, for example, the structure of the flat light source device 1 is such that most of the light emitted from light source 3 enters the light guide 4 directly from light source 3 and then is reflected by reflector 5. Further, as shown, the reflector 5 is not positioned to block any light from directly entering the guide 5. Accordingly, Oyama does not disclose "a barrier plate for blocking the light emitted from entering directly to said light-guide-member," as required by Applicants' claim 1 (emphasis added).

It is because Applicants include the feature of a barrier plate for blocking the light emitted from entering directly to said light-guide-member, that the following

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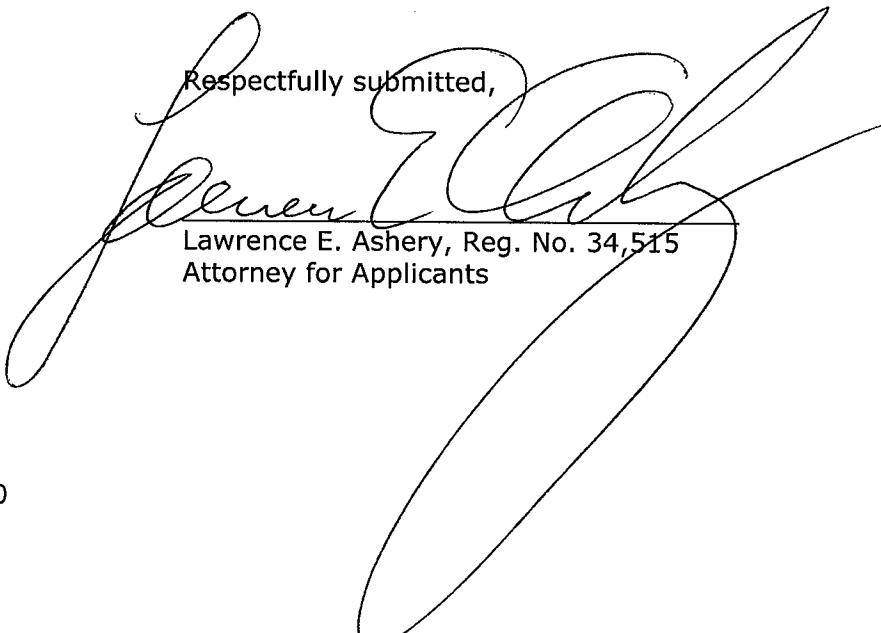
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advantages may be achieved. Namely, the light emitted from light source 1 may be distributed more evenly, thereby achieving a surface lighting device with better visibility.

Accordingly, for the reasons set forth above, claim 2 is patentable over the art of record.

In view of the amendments and arguments set forth above, the above-identified application is in condition for allowance which action is respectfully requested.

Respectfully submitted,


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Dated: June 9, 2008

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